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09/523,990	03/13/2000	Mou-Shiung Lin	MEG99-005	6138

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EXAMINER
WALSH, DANIEL I

ART UNIT	PAPER NUMBER
2876	

DATE MAILED: 03/06/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/523,990	LIN ET AL.	
	Examiner	Art Unit	
	Daniel I Walsh	2876	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11-19-02 (RCE)* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-10,12-23 and 25* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-10,12-23 and 25* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

1. Receipt is acknowledged of RCE received on 19 November 2002.

Claim Objections

2. Claim 1, 12, 13, 22, and 25 are objected to because of the following informalities:

Replace "easily scraped" with -- scraped --.

Appropriate correction is required.

3. Claim 1, 12, 13, and 25 are objected to because of the following informalities:

Replace "chip" with -- electronic integrated circuit chip --.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later

invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 1-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shamir (US 5,118,369) in view of Rostoker (Us 6,44,102), Samonides (US 5,346,738) and Hess, Jr. et al. (US 5,279,690).

Shamir teaches a method for marking a chip by forming marking indicia on a marking location upon an exterior surface of the chip for identification of the chip through FIG. 8 and "the microlabels 122 may be utilized in any application in which product identification requires exceedingly small labels. Moreover, microlabels bearing other indicia such as letter or numerals, either with or without bar codes, offers IC manufacturers and others a unique microlabelling capability (see FIG 8, label 122 and FIG. 9 labels 128 and 130" (abstract). Though Shamir doesn't teach that the labels are on chips, it would have been obvious to an artisan of ordinary skill in the art to include such labels on chips, since Shamir is teaching microlabels for small IC applications, such as circuits on wafers, and it would have been obvious to extend this to chips or other similar IC devices.

Shamir fails to teach that the indicia are internal.

Further, Rostoker teaches that indicia on marking locations on an exterior surface of the chip for identification exist through FIG's 2 and 3A-3B.

Rostoker fails to teach that the indicia are internal.

Samonides teaches that the indicia is internal through "An identification label for permanently marking a metal or other etchable surface such as an automobile part with an identifying indicia is disclosed. The label has a protective cover sheet 14, a pressure sensitive

adhesive 34 irremovably affixed to the cover sheet, and a liner with a release coating removably affixed to the adhesive. An identifying indicia 44 comprising an etchant in a visible vehicle such as a printing ink is printed on the adhesive at the interface of the removable liner and the adhesive so that when the liner is removed, the remaining portions of the label may be adhesively attached to the metal surface with the etchant of the identifying indicia in etching contact therewith. The identifying indicia will thus be etched into the surface of the part for a permanent marking of the part" (abstract). Though Samonides doesn't teach that the label is specifically for a chip or IC device, at the time the invention was made, it would have been obvious to an artisan of ordinary skill in the art to use such a technique for chip identification since Samonides teaches that it can be used for marking a metal or other etchable, relatively small, surface. Further, it is well known that semiconductors and IC components commonly are etched, further obviating such modification to the teachings of Samonides.

Samonides fails to teach forming a non-black optically transmissive material over at least the marking location on the one exterior surface of the chip, that it is transparent or semi-transparent. Further, Samonides fails to teach that the material is used for environmental handling and protection.

Hoppe teaches a multiplayer identification card containing an IC module (chip) I a cavity. Hoppe teaches that a clear silicon rubber known by the name of Sylgar 186 Elastomer (col 4, lines 22+) can be used to fill the cavity and cover the chip. It is well known and has been taught above, that chips have identifying indicia on their surface (via etched or labels applied), such as a serial number/product number/etc. Further, it is well known that polymers for encapsulation are transparent, though colors can be added. Moreover, the Dow Corning website

(www.dowcorning.com/content/etronics/etronicsencap/etronic-enc_ov.asp) teaches that the Sylgard 186 is transparent, and non-black, and hence optically transmissive. Therefore, at the time the invention was made, it would have been obvious to an artisan of ordinary skill in the art to combine the teachings of Rostoker with Samonides and Hoppe, since it has been taught above that chips have identification on their outer surface, and Hoppe teaches the application of a transparent polymer to the surface of a chip to cover it. One would have been motivated to combine the references to label a chip for identification in a method that is well known in the art, while also protecting the chip when inserted into a card application, as also is well known in the art. Hoppe teaches encapsulating for protecting the chip, which includes handling/environmental protection since the chip is encapsulated, it is understood that it is protected to a certain degree from such factors.

Re claims 4 and 8, at the time the invention was made, it was well known in the art that conventional bar codes are read by bar code systems directing electromagnetic radiation on the marking indicia (barcode) and processing the received reflected radiation/images, that such reading can take place even when the indicia is behind a transparent layer, such as the case in grocery stores, etc.

Re claim 5, though Shamir fails to teach a non-black optically transmissive colored material covers at least the marking location of the one exterior surface of the chip, Shamir teaches "a color bar encoded microlabel, small enough to be placed on the surface of the die" (abstract) and "The microlabels, whether color bar or black/white coded, are applied preferably at the wafer probing stage" (abstract). This is interpreted to include color bar codes on chips and other semiconductor devices.

Further, though Hoppe teaches the use of a polymer, Hoppe is silent to the specifics of the color.

However, at the time the invention was made, it was well known that transparent/semi-transparent polymers for encapsulation can come in different colors, formed by adding colored dyes, for application specific purposes (see attached Dow Corning website for Dow Corning 3-4207 Tough Gel Dielectric Gel, for example). Consequently, it would have been obvious to an artisan of ordinary skill in the art at the time the invention was made, to use a colored polymer. One would have been motivated to do this as a matter of design variation, since the applicant has not disclosed that a colored covering material solves any stated problem for the current invention, and it appears the invention would perform equally well with an uncolored polymer/material.

Re claims 6 and 7, since Hess, Jr. et al. teaches a cover over the indicia, and Shamir teaches labeling on IC dies on wafers, this is interpreted to include preventing remarking indicia or identification marks on the chip/silicon for a semiconductor package, especially since silicon is well known as a semiconductor and is commonly found in wafer forms. Further, the etched or microlabels are on the device themselves, thus preventing remarking since they are not easily alterable. Further, being under a polymer such as that taught by Hoppe (encapsulated) remarking is prevented.

At the time the invention was made, it would have been obvious to an artisan of ordinary skill in the art to combine the teachings of Shamir, Rostoker, Samonides, and Hoppe.

One would have been motivated to do this to provide a reliable, and robust way of identifying chips/semiconductor components by adding a cover to preserve the physical indicia

and its genuineness, while still being able to read and identify the chip/indicia using conventional methods through the protective material layer, since it is well known and conventional to apply indicia/labels to chips/small IC devices, as it is also well known to encapsulate such IC chips with a transparent polymer, when the chip is embodied in a card.

5. Claims 9, 12,13-17, 19-22, and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rostoker in view of Samonides Hoppe and Shamir.

Rostoker teaches a semiconductor, integrated circuit chip having surfaces including a planar front surface, a planar back surface and edges of the chip between the planar surfaces with at least on electrical contact site on a surface through FIG 2 and FIG. 6. Rostoker teaches marking indicia 320a, 320b and 632b upon an exterior marking portion of a surface of the chip for identifying the chip through FIGs. 3A-3B, and 6A.

However, Rostoker fails to teach that the indicia is internal, forming a non-black layer covering the exterior surface of the chip at least at the exterior marking portion thereof, the non-black layer being composed, of a colored, optically transmissive, transparent material preventing remarking, whereby the indicia are visible through the non-black layer.

Samonides teaches that the indicia are internal through "An identification label for permanently marking a metal or other etchable surface such as an automobile part with an identifying indicia is disclosed. The label has a protective cover sheet 14, a pressure sensitive adhesive 34 irremovably affixed to the cover sheet, and a liner with a release coating removably affixed to the adhesive. An identifying indicia 44 comprising an etchant in a visible vehicle such as a printing ink is printed on the adhesive at the interface of the removable liner and the

adhesive so that when the liner is removed, the remaining portions of the label may be adhesively attached to the metal surface with the etchant of the identifying indicia in etching contact therewith. The identifying indicia will thus be etched into the surface of the part for a permanent marking of the part" (abstract). Though Samonides doesn't teach that the label is specifically for a chip or IC device, at the time the invention was made, it would have been obvious to an artisan of ordinary skill in the art to use such a technique for chip identification since Samonides teaches that it can be used for marking a metal or other etchable, relatively small, surface. Further, it is well known that semiconductors and IC components commonly are etched, further obviating such modification to the teachings of Samonides.

Samonides fails to teach forming a non-black layer covering the exterior surface of the chip at least at the exterior marking portion thereof, the non-black layer being composed, of a colored, optically transmissive, transparent material preventing remarking the indicia on the exterior marking surface of the chip, whereby the indicia are visible through the non-black layer. Samonides also fails to teach that the optically transmissive material is used for environmental protection/handling of the silicon.

Hoppe teaches such a material as discussed above. Further, since the protective material is transparent, the indicia are visible through the layer. As taught above, it is understood that the polymer/cover layer cannot be scarped off the chip for replacing the indicia, since the chip is encapsulated by the polymer for protection purposes. Though the specifics as to the color of the optically transmissive transparent cover are not disclosed, at the time the invention was made, it was well known that transparent/semi-transparent polymer, as discussed above. One would have been motivated to do this as a matter of design choice, sine the applicant has not disclosed that a

colored covering material solves any stated problem or is for any particular purpose, and it appears that the invention would perform equally well with conventional transparent polymer. However, colored transparent polymers have been discussed above, as well. Re claim 19, it is understood that such a polymer can be protective against the environmental handling/protection, since the purpose of encapsulation is to protect the chip, while ensuring electrical connectivity as necessary when embodied in a card. Further as mentioned above, the polymer is well known to provide protection against environmental/ handling damage.

Re claim 12, Rostoker teaches the color represents identification of the chip as discussed above in claim 11, and Shamir teaches marking indicia for identification. Therefore, at the time the invention was made, it would have been obvious to have color and indicia as means for identification. One would have been motivated to do this since Rostoker teaches that color is used to identify characteristics of the chip visible from far away such as pin location, etc., whereas the bar-coded indicia taught by Shamir could identify more in-depth data that would need to be encoded in bar code form. Thus the two different identification techniques allow different levels and amounts of data to be stored about the chip, thus being more convenient and user friendly for a user who needs to use, identify, or determining specific parameters of the chip, which are understood to be viewable through a transparent encapsulated polymer, as taught by Hoppe, which conventionally covers a chip, for example when embodied in a card application.

Re claim 17, it has been taught above that the transmissive material is transparent. Further, at the time the invention was made, it would have been obvious to an artisan of ordinary skill in the art that the indicia taught by Rostoker or Samonides inherently prevent remarking

since they are labels or etched indicia on the chip/device itself, and prevent remarking since they are not easily alterable, and are below a encapsulated layer.

Re claims 20 and 21, though the prior art is silent to teaching the internal indicia are read through the non-black optically tansmissive material in response to images of the internal marking indicia provided by reflections of the electromagnetic radiation directed upon the indicia, at the time the invention was made, it was well known in the art that conventional bar codes are read by directing electromagnetic radiation/illumination means on the marking indicia (barcode) and processing/reading the received reflected radiation/images, and that this reading process can take place through transparent layers, as in the case of grocery stores, etc.

At the time the invention was made, it would have been obvious to an artisan of ordinary skill in the art to combine the teachings of Rostoker, Samonides, and Hoppe.

One would have been motivated to do this to provide a reliable, and robust way of identifying chips/semiconductor components by adding a cover to preserve the physical internal indicia/card and its genuineness, while still being able to read and identify the chip/indicia using conventional methods (barcode/color identification), through the protective polymer layer, which is well known in the art.

6. Claims 10, 18, and 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Rostoker as modified by Samonides, and Hoppe, and further in view of Shamir, as applied to claim 1.

The teachings of Rostoker as modified by Samonides and Hoppe have been discussed above.

Rostoker as modified by Samonides and Hess, Jr. et al. fails to teach the internal indicia are read through the non-black optically tansmissive material in response to images of the internal marking indicia provided by reflections of the electromagnetic radiation directed upon the indicia.

However, at the time the invention was made, it was well known in the art that conventional bar codes are read by directing electromagnetic radiation/illumination means on the marking indicia (barcode) and processing/reading the received reflected radiation/images, and that this reading process can take place through transparent layers, as in the case of grocery stores, etc.

It would have been obvious to an artisan of ordinary skill in the art to combine the teachings of Rostoker as modified by Samonides, and Hoppe, and further in view of Shamir, as applied to claim 1.

One would have been motivated to do this to provide a reliable, and robust way of identifying chips/semiconductor components by adding a cover to preserve the physical internal indicia and its genuineness, while still being able to read and identify the chip/indicia using conventional methods, through the protective material layer.

Additional Remarks

7. The examiner notes that the explanation of "scraped off" re claims 1, 12, 13, 22, and 25 as submitted by the Applicant in the RCE of 19 November 2002, sufficiently clarifies the 35 U.S.C. 112 rejections for that phrase for the Examiner. However, the amendment in the RCE of 19 November 2002, which changed "scraped off" to "easily scraped off" confuses the examiner,

and is seen as unnecessary. The Examiner requestfully suggests that "easily scraped off" be replaced with -- scraped off -- for clarity purposes.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: Quaintance et al. (US 3,953,625), Hoshino et al. (US 5,300,764), Brodsky et al. (US 6,489,985), Takiar et al. (US 6,448,632), Chang et al. (US 6,197,481), Gassies et al. (US 5,794,532), and Valley et al. (US 5,676,376).

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Daniel Walsh** whose telephone number is **(703) 305-1001**. The examiner can normally be reached between the hours of 7:30am to 4:00pm Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael G. Lee can be reached on (703) 305-3503. The fax phone numbers for this Group is (703) 308-7722, (703) 308-7724, or (703) 308-7382.

Communications via Internet e-mail regarding this application, other than those under 35 US.C. 132 or which otherwise require a signature, may be used by the applicant and should be addressed to **[daniel.walsh@uspto.gov]**.

All Internet e-mail communications will be made of record in the application file. PTO employees do not engage in Internet communications where there exists a possibility that sensitive information could be identified or exchanged unless the record includes a properly signed express waiver of the confidentiality requirements of 35 U.S.C. 122. This is more

clearly set for the in the Interim Internet Usage Policy published in the Official Gazette of the Patent and Trademark on February 25, 1997 at 1195 OG 89.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0956.

DW
3/4/03

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